EC-3 COFFER DAM

Refer to: ITD Standards and Specifications for Highway Construction, Sections 210 and 501.

Standard Symbol to be developed.

Definition and Purpose

A coffer dam is a temporary structure built into a waterway to contain or divert movement of water and to provide a reasonably dry construction area. Coffer dams are commonly made of steel sheet pile, rock, gabions, concrete jersey barriers, vinyl tubes filled with water, or wood and may be lined with geotextile, plastic sheeting, or other materials to prevent water from entering the construction area.

BMP Objectives

- ☐ **Perimeter Control**
- ☐ **Slope Protection**
- ☐ **Borrow and Stockpiles**
- ☐ **Drainage Areas**
- ☒ **Sediment Trapping**
- ☒ **Stream Protection**
- ☐ **Temporary Stabilizing**
- ☐ **Permanent Stabilizing**

Appropriate Applications

Coffer dam construction may be required for activities such as stream alteration or construction of bridges, piers, or abutments that involve excavation or placement of soil and rock within a body of water.

Limitations

- Under some conditions, the design must be developed or approved by a qualified licensed engineer.
- The coffer dam should be sturdy enough to withstand water pressure and scouring.
- The use of a coffer dam below the high water mark of a stream or other water body (waters of the U.S.) should be carefully evaluated in coordination with the Corps of Engineers Section 404 permit. A Section 404 permit, IDEQ 401 Certification will be required. An Idaho Department of Water Resources Stream Alteration Permit may also be required.

Design Parameters

- Coffer dams should be designed to withstand currents and scour conditions expected under normal stream flow and annual high water. The useful life expectancy is generally 6 months or less.
- Specific design is not required for a coffer dam, except where any one or more of the following applies:
  - The coffer dam will provide support for earth pressures.
  - Hydrostatic pressures are not equal.
  - Waters are deep or rough.
  - Life may be endangered, due to coffer dam failure.
  - Where the coffer dam is to be 5 feet or higher.
- Construction materials commonly include steel sheet piles, rock, vinyl tubes, or wood. Piling could consist of standard steel sheet interlocked and driven into the soil or anchored to bedrock. Wooden structures may consist of planks or wood timbers. Concrete jersey barriers may be used, depending on the anticipated water flow, depth and appropriate fit and contact with the stream bed.
- The water side of the coffer dam may be lined with plastic sheeting or some other suitable material that would prevent water passage into the construction area.
- The coffer dam should be designed by a professional engineer, when required, or as shown on the plans. Field adjustments shall be made as necessary. Vinyl tubes (bladders) shall be installed following manufacturer's recommendations and guidelines. Rocks or sharp objects shall be removed prior to installation.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications.
- Remove accumulated sediment and debris regularly and just prior to removing the coffer dam.
- Upon removal of the coffer dam, stabilize the area and streambed and restore to as near-natural condition as possible. This may require some form of rock riprap and permanent revegetation if the stream bank has been disturbed.